



Spectral Gamma-Ray Borehole  
Log Data Report

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Borehole

41-10-10

Log Event A

### Borehole Information

Farm : <u>SX</u>	Tank : <u>SX-110</u>	Site Number : <u>299-W23-67</u>
N-Coord : <u>35,273</u>	W-Coord : <u>75,710</u>	TOC Elevation : <u>665.12</u>
Water Level, ft :	Date Drilled : <u>3/16/1956</u>	

### Casing Record

Type : <u>Steel-welded</u>	Thickness : <u>0.313</u>	ID, in. : <u>8</u>
Top Depth, ft. : <u>0</u>	Bottom Depth, ft. : <u>126</u>	

### Equipment Information

Logging System : <u>1</u>	Detector Type : <u>HPGe</u>	Detector Efficiency: <u>35.0 %</u>
Calibration Date : <u>03/1995</u>	Calibration Reference : <u>GJPO-HAN-1</u>	

### Logging Information

Log Run Number : <u>1</u>	Log Run Date : <u>6/27/1995</u>	Logging Engineer: <u>Gary Lekvold</u>
Start Depth, ft.: <u>0.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>90.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

Log Run Number : <u>2</u>	Log Run Date : <u>6/28/1995</u>	Logging Engineer: <u>Bob Spatz</u>
Start Depth, ft.: <u>124.5</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>89.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

Borehole

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**Analysis Information**

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Analyst : S.E. KosData Processing Reference : Data Analysis Manual Ver. 1Analysis Date : 11/9/1995**Analysis Notes :**

This borehole was logged in two log runs. The pre- and post- verification spectra indicated that the logging system was operating properly during data collection. The energy/channel drift that occurred during the logging runs exceeded the search parameters of the processing software; therefore, multiple energy calibrations were required to process the data.

The casing thickness is 1/4 in.(0.250 in.); a correction for 0.25-in.-thick casing was applied to the data. The borehole was dry and no water correction required.

The only man-made radionuclide identified was Cs-137. This contaminant occurred from the surface to a depth of 1.5 ft and at the bottom of the borehole.

Details regarding the interpretation of the data for this borehole are presented in the Tank Summary Data Report for tank SX-110.

**Log Plot Notes:**

Three log plots are provided. The Cs-137 activity is plotted on a separate plot to provide details of activity and distribution.

The natural gamma-ray logs show the activities of the naturally occurring radionuclides potassium (K-40), uranium (U-238), and thorium (Th-232). The KUT plot is provided to allow correlation of lithologic features between boreholes. The KUT activities observed in this borehole are typical for Hanford Site sediments.

A combination plot incorporates the Cs-137 and KUT log data with the total gamma-ray count rate derived from the spectral gamma-ray data and the gross gamma-ray data acquired with the WHC Tank Farms gross gamma-ray logging systems. This plot allows correlation of the Cs-137 contamination zones with lithologic features and with the historical gross gamma-ray record.

The statistical uncertainty in a measurement is represented on the log plots by uncertainty bars where appropriate. This uncertainty is reported at the 95-percent confidence interval. The minimum detectable activity (MDA) of a radionuclide represents the lowest activity at which positive identification of a gamma-ray peak is statistically defensible. The MDA values are indicated on the log plots by open circles. If the reported activity is slightly above the MDA, the 95-percent confidence interval may extend below the MDA value and the measurement cannot be stated with 95-percent confidence.

The Tank Farms gross gamma-ray plot is produced from the most recent data available from WHC. No corrections other than scale adjustments for plotting have been made to the data.